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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,908	09/23/2004	Erik A.T. Trommelen	TS0777/US	9882

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EXAMINER

WU, IVES J

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/508,908	Applicant(s) TROMMELEN ET AL.	
	Examiner Ives Wu	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/13/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-26 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/23/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 to 11 are cancelled.

Claim Rejections - 35 USC § 112

(1). Claim 24 provides for the use of bituminous composition, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 24 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

(2). Claims 12-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Vonk et al (US004904713), in view of Agostinis et al (US004874821).

Vonk et al (US004904713) disclose a bituminous mixtures comprising:

a) one bitumen with penetration preferably from 50 to 250 dmm at 25 °C according to ASTM-D5;

b) at least one elastomeric block copolymer comprising:

b1) at least two polymer blocks A, the block A is predominantly a polymerized alkenyl arene block, particularly preferred styrene. The number average molecular weight of block A ranges from 5,000 to 50,000.

b2) at least on polymer block B, the block B being predominantly a polymerized conjugated diene block, wherein at least one B block is between the at least two blocks A. The preferred conjugated dienes are butadiene and isoprene, mixtures of such conjugated dienes may also be used. The polydiene block (or blocks) B has (have) preferably a number average molecular weight from 15,000 to 350,000.

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c) a polymer of a monoalkenyl arena, its number average molecular weight in the range of 0.25 to 2 times the number average molecular weight of the block A.

The additional A and/or B blocks may be grown via sequential addition of the respective monomer to produce a linear polymer, e.g., A-B-A, A-B-A-B, etc. Preferably the bituminous composition contains from 1 to 20 wt% of the elastomeric block copolymer and from 10 to 60 wt% of the polymeric blocks A in the elastomeric block copolymer.

As to bituminous composition comprising a bituminous component and a block copolymer in the **independent claim 12**, Vonk et al disclose the **bituminous composition** suitably in roofing coating, comprising a bitumen, at least one elastomeric, optionally hydrogenated, block copolymer of an alkenyl arena and a conjugated diene, and a polymer of a monoalkenyl arena, Col. 1, line 8-12.

As to the block copolymer comprising at least two blocks of a conjugated diene and at least two blocks of a monovinylaromatic hydrocarbon of the general formula: $S_1 - B_1 - S_2 - B_2$ in **independent claim 12**, Vonk et al disclose the additional A and/or B blocks may be alternatively grown via sequential addition of the respective monomer to produce a linear polymer, e.g., A-B-A, A-B-A-B, etc, Col. 4, line 1-4.

As to the weight average molecular weight of monovinylaromatic hydrocarbon in the block copolymer ranging from 12,000 to 40,000 and its content in the range from 10 to 35 wt% of the block copolymer in **independent claim 12**, Vonk et al disclose the polymeric blocks A preferably have number average molecular weights of 5,000 to

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50,000. It is preferred that the proportion of the polymeric blocks A in the block copolymer lies in the range of 10 to 60 wt%, Col. 2, line 34-40.

As to the limitation of (1) the apparent molecular weight of B₁ to be 180,000 to 400,000, B₂ to be 15,000 to 60,000; and (2) both conjugated diene blocks comprising at least 50 mol% of isoprene in **independent claim 12**, Vonk et al disclose that the polydiene block (or blocks) B has (have) preferably a number average molecular weight of 15,000 to 350,000, (Col. 2, line 51-54) which includes or overlaps the molecular weight limitations. Moreover, Vonk et al also disclose that the blocks B may comprise homopolymers of conjugated diene monomers, copolymers of two or more conjugated dienes, Col. 2, line 20-22; The preferred conjugated dienes are butadiene and isoprene, Col. 2, line 32-34. The conjugated diene blocks of patentee will have more than 50 mol% of isoprene as the B block is homopolymer of isoprene.

Vonk et al **does not disclose** the weight ratio of conjugated diene block B₁ over B₂ ranging from 3.0 to 12.0.

Agostinis et al **disclose** the weight ratio for two polydienic blocks in a relation so that weight of one polydienic block will be weight of the other polydienic block times a value from 0.1 to 0.5, Abstract, line 15-20. In other words, the weight ratio for two polydienic block is ranged from **2.0 to 10.0**.

The advantage of using block copolymer consisting of linear alternating polydienic and polyvinylaromatic blocks, having a particular structure and distribution of the individual blocks is that enable an unexpectedly good balance of characteristics

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between mechanical characteristics and thermooxidation resistance, Col. 1, line 5-50, Col. 2, line 1-9, of Agostinis et al (US004874821).

The advantages of using copolymer of butadiene/isoprene as polydienic block is described as same advantages, or similar advantages, are achieved, when butadiene is replaced by other dienic monomers, Col. 2, line 57-61 of Agostinis et al (US004874821).

It would have been obvious at time of applicant's invention to include weight ratio of two types of polydienic blocks of Agostinis et al in the block copolymer of the Bituminous mixture disclosed by Vonk et al because it will achieve the aforementioned advantages.

As to limitation of **dependent claim 13 & 14**, Vonk et al disclose the block B may comprise homopolymer of conjugated diene monomers, or copolymer of two or more conjugated diene monomers, Col. 2, line 20-22. The polydiene blocks of patentee will contains at least 80 mole% of isoprene when the isoprene is selected to predominate the block and 99 mol% of isoprene when isoprene is selected as homopolymer monomer.

As to the limitation of **dependent claim 15 & 16**, Vonk et al disclose the polymer block A being predominantly a polymerized alkenyl arena block, Col. 1, line 36-37; The A blocks are preferably monoalkenyl arena, Col. 2, line 6-7; The preferred monoalkenyl arena styrene particularly, Col. 2, line 16-19; It will be understood that both blocks A and B may be either homopolymer, random or tapered copolymer blocks as long as each block predominates in at least one class of the monomers characterizing the blocks defined herein. For example, blocks A may comprise styrene/alpha-

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methylstyrene copolymer blocks, Col. 1, line 66 - Col. 2, line 3. The A blocks of patentee will contain at least 80 mol% of styrene when the styrene is selected to predominate and 99 mol% styrene if block A of patentee is homopolymer of styrene.

As to the limitation of **dependent claim 17**, Vonk et al disclose the polydiene block (or blocks) has (have) preferably a number average molecular weight of 15,000 to 35,000, Col. 2, line 51-53. It is well known this range of number average molecular weight will include the apparent molecular weight of from 250,000 to 350,000 of instant claim 17.

As to the limitation of **dependent claim 18**, Vonk et al disclose the polymeric block A preferably have number average molecular weight of 5,000 to 50,000, Col. 2, line 35-37. It is well known this range of number average molecular weight will include the apparent molecular weight of from 20,000 to 35,000 of instant claim 18.

As to the limitation of **dependent claim 19 & 20**, Agostinis et al disclose the weight ratio for two polydienic blocks in a relation so that weight of one polydienic block will be weight of the other polydienic block times a value from 0.1 to 0.5, Abstract, line 15-20. In other words, the weight ratio for two polydienic block is ranged from **2.0 to 10.0**, which includes the weight ratio of 4.0 to 8.0 of instant claim 19, and 6.0 of instant claim 20.

As to the limitation of **dependent claim 21**, Vonk et al disclose the bituminous composition preferably containing from 1 to 20 wt% of the elastomeric block copolymer, Col. 4, line 22-23; the balance will be bituminous component which is from 80 – 99 wt%.

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As to the limitation of **dependent claim 22**, Vonk et al disclose the bitumen component with penetration of 200 dmm at 25 °C in Examples, Col. 4, line 64-65.

As to the limitation of **dependent claim 24 & 25**, Vonk et al disclose the bituminous composition especially suitable in roofing coatings, Col. 1, line 8-9.

As to the limitation of **dependent claim 26**, Vonk et al disclose the bituminous composition used as roofing coating, the composition is suitably employed in combination with a reinforcement such as woven fabrics, Col. 4, line 39-45.

(3). As to the limitation of block copolymer in **independent claim 23**, the disclosure of Vonk et al and Agostinis et al are incorporated herein by reference. The most subject matter of block copolymer composition in the applicant's claim 23 has been recited in applicant's claim 12 and has been discussed in paragraph (2).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ives Wu whose telephone number is 571-272-4245.

The examiner can normally be reached on 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: Ives Wu

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Date: July 21, 2005


DAVID W. WU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700